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Lie Detectors Lie

The Pentagon's False Promise of Assured Loyalty

By Peter J. Ognibene

WASHINGTON, Jan. 3 — *The Reagan administration announced today that it will randomly subject employees of the Department of Defense to a procedure called trial by ordeal. Those selected will be bound hand and foot and thrown into the Potomac River to test their "trustworthiness, patriotism and integrity." Those who float will be reinstated; those who sink will not.*

The administration, obviously, made no such pronouncement on Jan. 3. However, it did the next best thing: It announced that the Pentagon would subject some 10,000 employees a year to random tests of the polygraph, the so-called lie detector. Under a new departmental directive, those judged guilty of "deception" may be removed from their posts and denied promotions. In the close-knit world of the defense establishment, a failed polygraph test will almost certainly become the kiss of death.

Though the polygraph may occasionally be of value in certain *criminal* investigations, it is worse than useless for ferreting out potential spies or crooked employees or leakers of classified information — which is ostensibly the purpose of the new Reagan scheme.

Moreover, if polygraph testing supplants other means of investigation, spies who have been trained to beat the machine may find it easier to penetrate our nation's defenses. In the end, professional liars and sociopaths may be cleared by the polygraph while hundreds of conscientious employees are forced to contend with spurious accusations that could cost them not only their jobs but their reputations.

The flaws of polygraph testing have been

amply documented, especially in the past 10 years. The most comprehensive and recent study was issued in November 1983 by Congress' Office of Technology Assessment. Yet, the machines are being used more and more. In 1983, the federal government conducted 23,000 polygraph examinations; the Pentagon accounted for more than 90 percent. Nationwide, more than 1 million tests were conducted, largely by private businesses hoping to spot likely thieves. So, in spite of evidence that it is reliable only in narrowly defined criminal cases, the polygraph is growing in popularity.

Why? Government officials point to recent spy cases and embarrassing news leaks; businessmen cite rising losses from employee crime. These are valid concerns today, but the search for a truth machine is nothing new. Indeed, it is as old as recorded history.

Does the body betray the mind? The guardians of ancient societies thought so. A Hindu papyrus, written about 900 B.C., described the telltale characteristics of a killer who used poison: "He does not answer questions, or they are evasive answers; he speaks nonsense, rubs the great toe along the ground, and shivers; his face is discolored; he rubs the roots of the hair with his fingers."

Believing that the mouth of a guilty man goes dry when confronted with his crimes, Asian and European interrogators would stuff a man's mouth with rice or bread. If he could swallow, he was pronounced innocent; if he could not, he was put to death. In Bengal, criminal suspects faced a saliva test of a different sort. Those who could lick a glowing hot iron and not get burned were set free; a blistered tongue sentenced a man to death.

To 20th-century Americans, these tests seem barbaric and unscientific. Yet, there is a direct connection between those ancient magistrates and their latter-day counterparts. All share a common belief,

one rooted more in folk wisdom than in science, that the body holds the key to the mind. Only the instruments have changed. Instead of hot irons, modern inquisitors use the polygraph.

The word polygraph is taken from the Greek phrase for "many writings." Appropriately enough, it was a Greek physician, Erasistratus, who, in the third century B.C., put forth the notion that deceit could be detected by changes in a person's pulse. Examining Antiochus, he found the young man's blood would race whenever they discussed his beautiful stepmother, Stratonice. Based on that observation, the physician, confirming the gossip he had heard at court, accused the two of incestuous adultery.

The machinery of "lie detection" goes back 400 years, to Galileo's invention in 1581 of the "pulsilogium," a pendulum that would swing in cadence with a person's heartbeat; a pointer on the device indicated the pulse rate. Experiments in the 18th century led to the sphygmomanometer, which measures blood pressure.

"The current instruments used by federal agencies are the product of 85 years of development by scientists and practitioners," said Norman Ansley, who heads the polygraph division of the National Security Agency, which is responsible for safeguarding U.S. military and diplomatic communications.

"Basically, the polygraph examination is a method of questioning whereby an individual is required to unequivocally respond with a yes or no answer to direct questions . . . This questioning is done while the examinee is attached to a very sensitive instrument which monitors the person's respiration, electrodermal response and cardiovascular activity to determine if there are any significant and consistent changes in these areas in direct response to any of the questions."

The procedure is physically uncomfortable. A blood-pressure cuff is wrapped around the upper arm and inflated. One or two tubes are tied tightly about the torso to measure respiration. To detect changes in skin resistance brought about by perspiration, electrical leads are attached to two of the fingers. Then comes the interrogation.

"Reactions are significant changes from the baseline recording which is established as the norm in each of the recorded areas at the beginning of each polygram or chart," said Ansley. "Depending on the individual examinee, these changes may be as massive as a total cessation of breathing or a major increase in blood pressure or as subtle as a

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change in the inhalation-exhalation pattern of respiration or slight decrease in skin resistance. The point is that the reactions will occur specifically at the problem question and not randomly, they will be significant to the trained examiner and they will be consistently occurring at the problem question whenever it is asked."

What is "the problem question"? That depends on who is being examined. For the guilty, it should be a question relevant to the crime. (Did you steal money from the cash register?) For the innocent, it should be a "control question." (Have you ever stolen anything?) In theory, the honest person will react most strongly to the control question whereas the criminal's vital signs will change significantly only when confronted with his crime.

"If the subject shows stronger reactions to the control as compared to the relevant questions," said David C. Raskin, a licensed polygrapher and professor of psychology at the University of Utah, "the test outcome is interpreted as truthful. Stronger reactions to the relevant questions are indicative of deception to the relevant questions."

But are they? Dr. John F. Beary III, an associate dean at the Georgetown University School of Medicine, argues: "There is no physiological response unique to lying The polygraph — which measures heart rate, blood pressure, breathing rate and skin resistance — detects excitement, not lies. Lying is only one of several stimuli which may excite a person. Other stimuli which cause excitement are fear of losing one's job,

embarrassment or anger at being examined."

For two and a half years (until September 1983), Beary served as principal deputy assistant secretary of defense for health affairs. His was one of the few voices raised at the Pentagon in opposition to broader use of polygraph testing.

A month before leaving office, Beary warned his superiors: "The polygraph/lie-detector endangers national security rather than protecting it. This is because many Americans believe it works, while the Russians think it does not. I am told the Soviets have a training school in an Eastern bloc country [reportedly Czechoslovakia] where they teach their agents how to beat the polygraph. Because many of our DOD [Department of Defense] managers think it works, they get a false sense of security, thus making it easier for a Soviet mole who passes the polygraph to penetrate the Pentagon."

In three experiments to test countermeasures, Raskin said in an interview, he found that "people can be trained to beat the poly-

graph tests In 30 minutes, we can teach people to do maneuvers, physical maneuvers, which enable most of them to produce truthful-appearing polygraph charts."

Some countermeasures are quite simple. David T. Lykken, a professor of psychology and psychiatry at the University of Minnesota, reported that a prisoner taught nine of his fellow inmates to recognize control questions — to which the truthful should react — and advised them to bite their tongues whenever such questions were asked. All nine fooled the polygraph. Studies have also shown that a dishonest person who takes a tranquilizer, such as meprobamate, before a polygraph test can depress his vital signs sufficiently to foil an examiner.

Ansley dismisses such reports: "In regard to countermeasures, a well-trained examiner will detect all of those common methods talked about on the street and published in popular books. Detecting and defeating countermeasures is part of our training in basic and advanced courses. Most of those so-called countermeasures do not even prevent the examiner from getting readable charts. Among the few that do, the subject's attempts are readily apparent."

The skill of the examiner is, of course, an important factor, and one would expect that agencies such as the NSA would have some of the best in the field. That may allow them to weed out some applicants with a hidden criminal past. But even the most skilled polygraph operator will be unable to predict which individuals might be tempted, when faced with financial difficulties years hence, to sell government secrets to a foreign power.

Because the NSA operates in total secrecy, no scientist can observe its polygraphers at work and publicly assess their effectiveness. But the open scientific literature weighs heavily against the polygraph. In its November 1983 report, the Office of Technology Assessment concluded that, "while there is some evidence for the validity of polygraph testing as an adjunct to criminal investigations, there is very little research or scientific evidence to establish polygraph test validity in screening situations, whether they be preemployment, preclearance, periodic or aperiodic, random or 'dragnet.' "

In a criminal case, where the number of suspects has been narrowed by careful police work, the polygraph can be used in what Lykken calls the "guilty knowledge test." This procedure centers on questions that can be answered only by the criminal. Take, for instance, the scene of the crime. If the examiner slowly reads a list of rooms, and a

suspect reacts only when the room where the crime occurred is mentioned, that would suggest he has "guilty knowledge." So, too, would his reactions to questions pinpointing the means of entry, the location of a weapon or the amount of money stolen.

Though potentially effective, the guilty-knowledge test can be applied in relatively few cases. Most of the 1 million polygraph exams given each year are conducted by private employers trying to expose employees or job applicants with larceny in their hearts. Here the verdict is clear: The polygraph is worthless.

FBI regulations specifically prohibit "use of the polygraph for dragnet-type screening of large numbers of suspects or as a substitute for logical investigation by conventional means." A polygraph test can be given by the FBI only when "there is reasonable cause to believe that the person to be examined has knowledge of or was involved in the matter under inquiry or investigation, or if the person is withholding information relevant to the inquiry or investigation."

Though Raskin favors polygraph testing in criminal cases, he opposes its use by most private employers. "The commercial sector is where you have the lowest level of confidence, the least concern for the welfare of the person taking the test. If they have any doubts (about certain employees), they're gone. When you go into the private sector, especially in the majority of the states where there is no regulation, anything goes I'm hoping there'll be a lot more control and that ultimately its use in the private sector will be severely curtailed."

Enthusiasts argue that the polygraph works and point to cases where a finding of "deception" impelled a criminal to confess his guilt. Yet, the instrument cannot be trusted when it comes to predicting potential wrongdoers. Beary compares the situation

to a medical diagnostic test which is 100 percent sensitive to a particular disease but also gives false indications 5 percent of the time. Ninety-five percent "specificity" may be acceptable for relatively common disorders but not for a disease, for instance, that afflicts only one person in 1,000. The reason is simple: There will be 50 "false positives" — that is, people who react positively to the test but do not have the disease — for everyone who actually has it. Thus, the predictive value of the test is only 2 percent: one in 50.

Because the polygraph measures anxiety rather than honesty, its accuracy is considerably less than 100 percent. Beary puts it at 70 to 80 percent; others claim 90 percent or more. Take either estimate, and the prob-

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lem remains. If substantial numbers are screened, there are bound to be many false positives — honest people branded “deceptive” by a polygraph examiner.

What happens to the honest person who flunks the polygraph? Though some 20 states restrict its use, individuals may lose their jobs and find prospective employers unwilling even to consider them based on a single polygraph test. Few workers fight back. Last year, however, four employees of a Maryland drugstore chain who lost their jobs after refusing to take polygraph tests received a court award of \$5 million.

What sort of person turns up a false positive? Lykken believes it is often the most up-right members of the community: “A preacher is likely to be more distressed than a felon would be to be accused of theft. Ask a West Point alumnus if he has betrayed an official secret and you may find that his heart beats harder and his palms sweat more than those of a psychopath asked the same question.

“The irony is that by basing more and more important decisions on the results of polygraph tests we may be producing an effect opposite to that intended, firing the most honorable police officers, refusing to hire the potentially most reliable employees, putting highly socialized citizens into unemployment lines or even prison, while staffing our security agencies with the undersocialized — for instance, such people as the CIA’s [Central Intelligence Agency’s] notorious Edwin Wilson — or with those clever enough to know how to beat the polygraph.” (It is not known whether Wilson was cleared by a polygraph test at any time during his career with the CIA.)

At the CIA and NSA, which screen all prospective employees with the polygraph, the greatest threat is posed by false negatives, such as spies who know how to beat the machine. Yet, high government officials appear oblivious to the danger. “We recognize that the polygraph is not infallible,” said Richard G. Stilwell, the deputy undersecretary of defense for policy. But he added: “As the result of extensive experience in CIA, NSA and DOD, we are convinced the polygraph process works There is no data suggesting that the various polygraph techniques and applications at DOD have high false positive or negative error rates.”

Lykken, however, warns against relying so heavily on those squiggles. “‘Lykken’s Law,’ ” he said, “asserts that in any complex decision-making situation a datum or piece of evidence that is simple and definite in its implications will tend to be given more weight than it deserves.”

Yet, bureaucrats and corporate officers who use polygraphs oppose efforts to restrict them. Some obviously believe they work; others may value the polygraph primarily as a weapon of coercion. If people

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fear that a machine can expose their innermost thoughts, they will be much less likely to dip into the company till or leak documents to a reporter. Stilwell argues that “the mere possibility of being subjected to a polygraph examination will act as a powerful deterrent to those individuals who might consider an attempt to penetrate or compromise [sensitive security] programs.”

The targets of this deterrence are not Soviet spies but federal employees. Fear of the Russians stealing military secrets did not spark President Reagan’s first attempt, in 1983, to broaden use of the polygraph. It came about after someone with access to Pentagon documents informed the press — and taxpayers — that the administration had underestimated the cost of its proposed arms buildup by \$750 billion.

Ronald Reagan is not the first president who has tried to use the polygraph to plug a leaky Pentagon. Richard Nixon took the same approach. In 1971, in a secret White House tape, Nixon was blunt: “Listen, I don’t know anything about polygraphs, and I don’t know how accurate they are, but I do know they’ll scare the hell out of people.”

A contrary view was espoused by Nixon’s nemesis, Sam J. Ervin, Jr., the former senator from North Carolina whose investigation of the Watergate scandal led to the uncovering of those secret tapes and the undoing of the man who made them. Ervin put it this way:

“The whole process smacks of 20th-century witchcraft. Does the flesh of the applicant burn when a hot iron is applied to it? When tightly bound and thrown into a pond, does the applicant sink or float? When strapped in a chair with electrodes and other gadgets attached, does the rate of respiration and blood pressure of the applicant rise? Does the salt of his pores induce increased electrical conductivity? Are we reduced to alchemy as a technique of screening applicants for highly sensitive positions in the federal bureaucracy?”

To increase our reliance on polygraph testing in the name of national security can only jeopardize our security. To reverse the Reagan administration’s new policy, Congress will have to enact legislation explicitly limiting the Pentagon’s use of the polygraph.

Congress should also look at how the polygraph is used — and misused — by private employers. If the polygraph is reliable only for narrowly defined investigations, then Congress should consider completely banning its use by the private sector.

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